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Haapakorpi, Arja

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# Doctorate holders outside the academy in Finland: academic engagement and industry-specific competence

[Arja Haapakorpi](#)

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## Abstract

In Finland, doctoral employment outside the academy has been increasing. Universities can no longer absorb the numbers in the doctoral labour force and research and development (R&D) policy emphasises the need for specialised research capacity in non-academic sectors; the highest academic degree is assumed to add value. However, the transition from doctoral programmes to employment outside the academy has been limited due to the social dynamics within labour markets. This article explores the careers of doctorate holders and the motives non-academic organisations have for recruiting such graduates. The data come from a survey of doctorate holders ( $N = 1183$ ) and interviews with 26 employers. Based on the analysis, there was little place for doctorate holders outside the academy, except in R&D roles. When employed to undertake work outside R&D, they carried out special, demanding tasks or had a particular role related to their academic status. Professional functions such as those undertaken by medical doctors, engineers and teachers were the most common, but career patterns varied from one employment sector to the next. Employers considered industry-specific competence to be important, and the status of the doctoral degree and the membership in the academic community were expected to advance collaboration with universities and enhance the professional status of the organisations that hired doctoral graduates.

Keywords: [PhD job markets](#), [career trajectories](#), [doctoral education](#), [doctoral employment](#)

## Introduction

Finnish national policies and the strategies of the European Union and the Organisation for Economic Cooperation and Development (OECD), which are aimed at innovative technological and economic reforms, have highlighted the importance of having a highly qualified labour force with research and development (R&D) capacity to contribute to innovation (Kehm [2006](#), [European Commission 2009](#); OECD [2012](#)). The objective of the Lisbon strategy 2000 was to make the European Union ‘the most competitive and dynamic knowledge-based economy in the world capable of sustainable economic growth with more and better jobs and greater social cohesion’ (Europa [2010](#)). The European Union expects doctoral education to provide the European Union’s member states with a competent labour force for R&D to cope in global economic competition (Kehm [2009](#)). The strategy of investing in higher education and R&D activities in order to promote economic growth has also been adopted in developing countries. For transnational corporations, the global explosion of higher education provides a substantial supply of labour with higher education qualifications. With information and communication technologies, labour can be distributed across continents and nation states by applying a more cost-effective division of labour

(Brown, Lauder, and Ashton [2011](#)). As higher education is no longer a resource only for individuals to expand their opportunities in labour markets or for nation states to promote their knowledge-based economy, doctoral-level training has become a potential strategy for increasing competitive resources.

In the European Union, a positive view of doctoral employment and the benefits of the innovative capacity of doctoral holders have not always been fully realised. The extent of innovation has not always contributed to modern economies to the extent expected (Kehm [2009](#)). With the explosion in the number of higher education graduates, competition for jobs in the knowledge economy has intensified. The growing number of doctorate holders has increased competition among them for academic positions, but getting a job outside the academy has not been easy either (Enders [2004](#)). This difficulty in finding employment is due to a disparity between the needs and values of the labour force outside the academy. This has been recognised in universities and Finnish doctoral training programmes have been systematised in recent years, with attempts to regulate access to doctoral programmes and to establish a more intensive pattern for promoting efficiency and employability (Ministry of Education and Culture [2013](#)).

## **The added value of the doctorate and the social dynamics in labour markets**

In order to understand the disparity between the expectations of higher education and its impact in promoting the economy and employment, doctoral education has to be problematised with regard to the social dynamics within labour markets. Getting a job is often normatively presented and oversimplified as a matter of matching the skills required and the skills possessed. This is a functionalist and technocratic view that cannot account for the complex relationship between education and the economy (Smetherham [2007](#)).

First, there is no direct correspondence between educational and occupational structures (Smetherham [2007](#)). The doctoral degree does not provide added value if employers outside the academy do not recognise the benefits of having an employee with the highest-level degree (Enders [2004](#)). According to Sadler ([2013](#)), the doctorate indicates holistic competence of analytical and critical analyses; problem-solving; locating, evaluating and using relevant information; initiative and creativity; and relevant effective communication skills.

In addition to these capacities, employers also like employees to have generic skills, which refer to application capacity, communication and administrative or management skills. The scope of generic skills has been disputed as regards their independence or discipline-relatedness (Sadler [2013](#)). Some scholars claim that generic skills are discipline specific (for example, in the management of technology), which is disputed by another group of scholars, which insists that generic skills are applied similarly regardless of the discipline (2013). The dispute is a reflection of the ambiguous character of the application of academic competence outside the academy because the employment of doctorate holders is related to organisation- and industry-specific conditions and needs. For example, firms imitating and diffusing knowledge-based products need employees with skills connected to markets and expertise in industry. Research competence is not the most important requirement. Therefore, the need for research competence varies according to the industry, market, products and quality of knowledge (Herrmann and Peine [2011](#)).

Second, even in cases where there is a genuine demand for a doctoral labour force, this does not mean that positions are accessible to every PhD holder. Universities and doctorate holders are stratified according to their status, competence and non-educational attributes. The worldwide explosion of higher education institutions has multiplied the number of university graduates, which

is related to the elaboration of companies' personnel strategies. Productivity gains are promoted by flexible employment strategies that mirror staff stratification. Employees with high competence and expectations of high salaries are not preferred for routine work (Gorman and Sandefur [2011](#)). On the other hand, another personnel policy is to promote relationships and cooperation with elite universities and to recruit well-known academics. Similarly, the universities promote their prestige by participating in university rankings and benefit from the achieved scores when collaborating with high-status businesses (Lauder [2011](#)); these graduates can look forward to employment in respected corporations and organisations.

Personal attributes and social origin play an important role in students' employment prospects and matching education and work is socially mediated. Gendered employment of the doctoral labour force has been investigated and unequal employment patterns for women and men have been recognised (Smetherham [2007](#)). Many studies have reported that educational and labour market achievements are related to social origin (e.g. Bourdieu and Passeron [1977](#)). Many studies have come to similar conclusions regarding entry to doctoral education (e.g. Enders [2002](#)) and career achievements of doctorate holders are biased by social origin (e.g. Cantwell and Lee [2010](#)). Although social origin and personal attributes are related to educational achievement and employment, the pattern varies.

## **University institution and employment of doctoral labour force in Finland**

Higher education policy in Finland has followed the Nordic pattern based on state-regulated, state-financed and fee-free education. Despite the autonomous position guaranteed to universities by the new University Act 2010, most of their funding still comes from the state. Typical of the Nordic university system has been one of the formal institutional uniformity with no clear hierarchies between universities (Fägerlind and Strömqvist [2004](#)). This uniformity has been turning to competition based on reputation since the turn of the millennium. For example, ranking positions, accreditation affiliation and awards are regularly profiled on the web pages of Nordic universities.

The educational level of the Finnish labour force in international comparisons is high (Eurostat [2012a](#)). In Finland, doctorate holders comprise approximately 1% of the total labour force (Ministry of Education and Culture [2010](#)) and the proportion of master's degree holders was 10% in 2008 (City of Helsinki Urban Facts [2009](#)). At the time this study was carried out, the unemployment rate of doctoral degree holders was 3% and the employment situation in Finland was positive, according to statistical indicators (Statistics of Finland [2010](#)). The increasing supply of doctorate holders seemed to match the demand for a highly educated labour force. In addition, the active labour market participation rate, which refers to employment opportunities, was high (Haapakorpi [2008](#)). In general, the employment of Finnish university graduates has been successful when compared with most other European countries and Finnish universities have been regarded as being equal from the perspective of employer organisations (Schomburg [2007](#)).

At the time of this study, the placement of doctorate holders was restricted to a fairly well-defined role within the labour market, as over half of doctorate holders occupied research and teaching positions in public sector organisations (Haapakorpi [2008](#)). From the perspective of the current recession and the cutbacks in university funding in Finland, it is likely that employment opportunities both inside and outside the academy will decline.

In Finland, the doctoral labour force is under-utilised in R&D, a situation which is not unlike that in the rest of Europe (Enders [2004](#)). In Finland, Sweden and Denmark, the financial resources devoted to R&D are among the highest in the European Union. In Finland, the resources available

represented 4% of GDP in 2010 (Eurostat [2012b](#)). R&D personnel from all sectors made up more than 2% of the labour force in 2010 (Eurostat [2012c](#)), and the increase in R&D personnel from 2000 to 2008 was 15% (Ministry of Education and Culture [2010](#)).

Most of the R&D personnel were employed in the business sector (52%), but the proportion employed in the higher education sector was also relatively high (36%), with 12% of the R&D personnel being employed in the governmental sector (Statistics of Finland [2009](#)). Although the number of R&D personnel increased from 2000 to 2008, the growth in the business sector has been minor compared with the substantial growth of that sector's resources (Ministry of Education and Culture [2010](#)).

Growth of the doctoral labour force in R&D has been relatively slow; the doctoral labour force has grown substantially, but their proportion of all R&D employees has not increased to the same extent. The proportion of Finnish R&D personnel having the highest-level degree was only 14% in 2008. The labour force in R&D has varied across business sectors and personnel policy regarding the doctoral labour force has been industry specific (Statistics of Finland [2011](#)).

## Research topic, questions and methodology

Doctoral employment and training, and higher education policy have been studied from a variety of perspectives, and the doctoral labour force has been indirectly examined in studies on innovation and R&D. Such studies have dealt with the substantial increase in the doctoral labour force in relation to career prospects outside the academy and poor employment terms in universities (e.g. Enders [2004](#) Enders), and the career aspirations of PhD students have been investigated (see, e.g. Huisman, Weert, and Bartelse [2002](#) Huisman). Doctoral training has been investigated with respect to the needs outside the academy (see, e.g. Kyvik and Olsen [2012](#)). The studies on innovation and R&D have focused on convergence or collaborative patterns of academic and non-academic research, and work modes of the labour force with research capability (Gibbons et al. [1994](#)). Special attention has been paid to gendered employment of the doctoral labour force (see, e.g. Smetherham [2007](#)). The studies are usually based on data collected from the doctorate holders themselves (e.g. Enders [2002](#)) and a minority of studies have investigated the employers' views (e.g. Välimaa [1998](#)).

The aim is to study doctorate holders' employment outside the academy by investigating

- (1) doctoral careers and
- (2) the motives for employing PhD holders.

The research questions dealing with *doctoral careers* cover

- Occupational profile.
  - What is the occupational profile of doctorate holders working outside universities?
  - Is there a particular niche for this population outside universities?
  - Does this population occupy more senior positions in the organisational hierarchy than employees not possessing a doctorate?
- The rewards related to the doctorate.

- Is the possession of a doctorate recognised in the workplace?

The *motives for employing PhD holders* are explored by analysing

- The *competence* required outside the academy.
  - What competence connected to doctoral-level work is needed outside the academy: research competence or some other form of competence?
- *Other reasons for employing doctorate holders.*
  - What are the other perceived reasons for employing doctorate holders?

In this study, ‘outside the academy’ refers to the governmental sector, the municipal sector including welfare services (teaching and medical treatment), the private sector, the non-profit private sector and the non-university higher education sector, including polytechnics.

The study focuses on Finnish doctorate holders outside the academy, but the results can be generalised in the European context to some degree. The employment model is similar in many regards. First, doctorate holders are often employed in academia and in the government sector, except in Austria and Belgium (Auriol [2010](#)). Second, the doctoral degree is not indispensable for a research position (Auriol [2010](#) Auriol). However, the limitation with respect to generalisation of the findings is related to the formal institutional uniformity of universities, which can have an impact on employment patterns. This will be discussed later.

## Methodology and data

The research topic was studied by applying a multi-perspective and a multi-methodological research frame. First, the views, opinions and experiences of both doctorate holders and their employers were collected and examined. Second, the study was based on both quantitative and qualitative methodologies, i.e. a survey of the doctorate holders and interviews with the employers. The purpose of applying the multi-perspective methodological frame was to collect versatile data and to undertake an analysis based on multiple perspectives. The exploration of the experiences and opinions of both the doctorate holders and their employers increases the validity of the study, but the versatility of the multi-perspective methodological frame also leads to some inconsistencies, which will be later discussed.

The data were collected in the following ways. First, a survey was sent to doctoral degree holders to collect data dealing with doctoral early careers and the value of a doctoral education in the labour market. The data were collected in 2006 and 2007. Second, a qualitative interview study was conducted with employers outside the academy. The purpose was to collect data dealing with the employers’ views concerning doctorate holders as employees. The interviews were conducted in 2007 and 2008. At the time this study took place, the unemployment rate was low compared with the current rate and there were more employment opportunities. Despite these differences related to the labour markets, the results dealing with careers and recruitment of doctorate holders outside the academy have not become outdated. Doctoral education has remained substantially unchanged; companies and other non-university organisations’ strategies, patterns and working methods have not fundamentally changed as regards the need of the doctoral labour force. A survey on doctorate holders’ destinations after examination was carried out in 2012 by Aarresaari, the network of



Finnish universities' counselling services (Aarresaari. Tohtorit työelämässä [2013](#)). The results have not suggested that there are substantial differences with respect to the employment sectors doctorate holders go to.

## Survey data of the doctorate holders

This study project was part of a long-term follow-up study on doctoral education and employment; it was carried out in collaboration with Aarresaari and funded by the network and the Ministry of Education and Culture. The data consisted of a survey sent to persons who had graduated in 2004–2005. The questionnaire asked doctorate holders about their motives for undertaking doctoral studies, the themes of their studies and the funding they received during those studies. Ideas on employment and careers were also requested. Further queries were made concerning their current job descriptions, quality of work, salary and the benefits of doctoral education as preparation for a career. The respondents were also asked to describe the qualifications and competencies that were required for their current positions.

Survey data were collected from 9 of the 21 Finnish universities. All disciplinary fields except fine arts and theatre were included. The scope of the survey is representative, as around half of the universities and most disciplines were covered. The questionnaire was planned in collaboration with the universities; the universities implemented the data collection themselves and a professional statistician integrated the data from the universities. The questionnaire included many open-ended questions, which were coded after the integration of the data. For example, the responses concerning job descriptions, professional titles and competence required in current positions were coded. The analysis of the survey data descriptive, focuses on average values, variance and correlations.

There were 1183 responses to the questionnaire and the response rate was 61%. Women were in the majority as 56% of the respondents. Concerning disciplines, science (23%) and medicine (21%) were the most common fields mentioned.

The proportions of respondents by university are presented in Table 1. Over 40% of the respondents had carried out their doctoral studies at the universities in the Helsinki region (University of Helsinki, Swedish School of Economics and Business Administration and the University of Art and Design), which provide varied employment opportunities compared with those available in the other university cities. In addition, 39% of the respondents came from the University of Helsinki. The degrees from different higher education institutions have been conceived as being equal in institutional terms, as the reputational differences between universities have been minor (Fägerlind and Strömqvist [2004](#)). Thus, employers have not recruited doctorate holders on the basis of the particular higher education institution, but rather by applying the criteria of education, discipline and degree (see Schomburg [2007](#)).

**Table 1. Respondents by university (percentages) and response rates by university.**

University	Proportion of the data	Response rate per university, (N)
University of Helsinki	39	60 (773)
University of Oulu	13	60 (260)

University of Jyväskylä	12	64 (222)
University of Turku	13	54 (281)
University of Tampere	10	57 (210)
Åbo Akademi	6	51 (136)
Tampere University of Technology	4	39 (126)
Swedish School of Economics and Business Administration	2	47 (34)
University of Art and Design *	1	78 (18)
Unknown	-	(2)
Total	100	(1183)

\* University of Art and Design was amalgamated to become Aalto University in 2010.

## Interview data of the employers

Attached to the questionnaire was a paper on which the respondents were asked to write the name and contact information about their manager so that he or she could be contacted and interviewed. The request was targeted at those working outside the academy. Of the 555 respondents who worked outside the academy, only 49 respondents gave the name of a manager who worked outside the academy.

The researchers sent a request for an interview to the selected managers or leaders by email or telephone. One of them refused and 16 of them did not respond to the request. Originally, the aim had been to focus on the employers in the private and non-profit private sectors, but only 14 private sector employers and 4 non-profit organisation employers responded. The data collection was completed with the employer interviews, which were conducted with managers from the governmental sector (4) and the municipalities (4). The municipal sector employer organisations were polytechnics and a high school. The total number of the employer interviews conducted was 26.

In order to enhance the external validity of the research, the purposeful selection included more than one employer from each industry or sector. This aim was achieved except in the case of the telecommunications and insurance industries. In small work sites, the interviewed persons were managers and in large- or medium-sized work organisations, the interviewed persons were directors in middle management or senior positions. The information on employer organisations and interviewed persons is presented in Table 2.

**Table 2. Employer interviews: sector, business line, size of the organisation and position of the interviewed person.**

Private sector organisations



Business line and (the number of organisations)	Size of the organisations	Position of the interviewed persons
Social and health services: 2	medium (1), network of independent entrepreneurs (1)	Managing director, Senior professional
Veterinary services: 2	small	Managing director
Pharmaceutical industry: 3	big (2), small networking (1)	Manager of professional functions (2), Managing director
Energy industry: 2	big	Middle management (1), Manager of professional functions (1)
Newspaper: 2	small (part of media corporation)	Middle management
Insurance company: 1	medium-sized	Senior professional
ICT corporation: 1	big	Middle management
Business consulting services: 1	small	Managing director
Non-profit private sector organisations		
Business line and the number of organisations	Size of the organisations	Position of the interviewed persons
Social and health care: 2	big, medium-sized	Manager of professional functions
Education: 1	small	Managing director
Church: 1	big	Manager of professional functions

Government

Emergency education: 1	small	Senior professional
Audit services: 1	medium-sized	Middle management
Education: 1	medium-sized	Managing director
Law: 1	big	Senior professional

#### Municipality and Polytechnics

Education: 1	small	principal
Polytechnic: 3	medium-sized (1) big (2)	managing director, head of a department

#### Size of the organisation

Small = 50 or less personnel

Medium-sized = 51 up to 300 personnel

Big = 301 or more personnel

Before the interviews, the R&D activities of the organisations, educational background of the staff and the size and the profile of the organisations were investigated to obtain background information for the interviews. The data were mostly collected from the web pages of these organisations and from the authorities funding R&D activities outside the academy. Half (13) of the organisations undertook R&D and collaborated with universities and 8 of them did not undertake R&D of their own, but did collaborate with universities. The rest (3) neither undertook any R&D nor engaged in university collaboration. The scale of research activities and collaboration with universities and research institutes varied. The employers with R&D and training-related collaboration were more positive about the request to be interviewed compared with those employers who did not collaborate with universities.

The interviews were semi-structured (Silverman [2006](#)), and interview themes were the following: the purpose, strategy and structure of the organisation; staff policy; positions and tasks of doctorate holders; recruitment and need for a doctoral labour force; benefits of employing doctorate holders; and finally, the future prospects of and related demand for a doctoral labour force. The interview data were collected, recorded and transcribed into text files. The data were analysed by applying the method of text analysis (Silverman [2006](#)). The data were categorised, with the categorisation being based on the interview questions (for example, ‘research competence as a recruitment requirement’) and themes in the interview data (for example, ‘doctoral employees provide access to university networks’). The analysis was focused on the themes that were emphasised the most. The data were further integrated and the categories were organised into two sections: ‘career’ and ‘motives for recruitment’. The interview analysis on the motives for employing doctorate holders produced two categories: the competence of the doctorate holders and the status of the doctorate and the membership in the academic community. For this article, the selected findings were related to the theoretical questions about the conditions that shape the careers of doctorate holders outside the academy.

The interview analysis supplied the primary findings (doctoral niche, industry-specific competence and motives for employing doctorate holders) for the construction of the article. The findings of the survey analysis from the perspective of the doctorate holders were mostly in line with the findings drawn from the interview analysis.

## **Research questions and the multi-perspective methodological frame**

In order to respond to the research question, the data analyses were utilised in the following ways.

### **Doctoral careers**

- Occupational profile

What is the occupational profile of doctorate holders working outside universities?

- Survey: professional destinations
- Interviews: job descriptions

Is there a particular niche for this population outside universities?

- Survey: requirement regarding doctoral degree
- Interviews: requirement regarding doctoral degree

Does this population hold more senior positions in the organisational hierarchy compared with employees not possessing a doctorate?

- Survey: managerial positions and tasks
- Interviews: managerial positions
- The rewards related to the doctorate.

Is the possession of a doctorate recognised in the workplace?

- Survey: increase in salary and career promotion after doctoral graduation
- Interviews: increase in salary after doctoral completion.

*The motives for employing PhD holders*

- The *competence* required outside the academy.

What competence, if any, connected to doctoral-level work is needed, outside the academy: research competence or some other form of competence?

- Survey: doctorate holders' own assessment on competence is necessary outside the academy
- Interviews: employers' assessment on necessary competence.
- *The other reasons for employing doctorate holders.*

What are the other perceived motives for employing doctorate holders?

- Interviews.

The analysis and findings are presented as follows. First, the careers are studied by presenting the occupational profiles and the rewards of the doctorate. Second, the recruitment motives outside the academy are analysed.

### ***Careers of doctorate holders***

#### ***Occupational profile***

In this section, the occupational profile, doctoral niche and managerial positions of doctorate holders are investigated on the basis of the survey data provided by the doctorate holders.

Generally, the doctorate holders found employment in the academy or in the public sector and the proportion of those working in private sector companies or as entrepreneurs was quite small (see Table 3).

**Table 3. Employment by sector (percentages).**

Sector	%
University	41
Municipal office	19
Business sector	13
Government	11
Non-university higher education	5
Non-profit private	4
Entrepreneur	3
Other	4
Total	100
(N)	(886)

The exploration of the occupational placement based on the survey indicated that research as a profession was most common (38%); the other titles held were teacher (21%); medical doctor or veterinarian (15%); manager (8%); coordinator, or officer in public administration (5%) and professional in engineering, natural sciences, agriculture and forestry (6%). The research profession was the most common in universities, but the proportion of researchers was also quite high in the non-profit private sector and the governmental sector (see Table 4). Similar findings have been prevalent in international comparisons. More than half of the doctorate holders in all European countries are employed as researchers (Eurostat [2012c](#)).

**Table 4. Occupations by sector (percentages).**

Table 4. Occupations by sector in percentages

	Government %	Municipality %	Non-profit private sector %	Business sector	University	Non-university higher education
Researcher	55	4	51	24	55	14
Manager, leader	9	9	20	20	2	7
Physician, veterinary surgeon	8	64	7	5	0	0
Expert in sciences or engineering	8	2	5	32	0	0
Upper civil servant, project coordinator	10	3	0	3	6	2
Media profession	1	1	5	2	1	0
Expert in marketing/economy	3	0	0	3	0	0
Teacher	1	16	2	1	34	77
Religious profession	0	0	7	0	0	0
Consult	1	0	2	4	0	0
Law profession	4	0	0	3	0	0
Psychologist	0	2	0	0	0	0
Other	1	1	0	2	0	0
Total	100	100	100	100	100	100
(N)	(140)	(192)	(41)	(119)	(404)	(56)

The doctorate holders in the municipal and the non-university higher education sectors were professionals in education and healthcare services. In the business and the non-profit private sectors, about 20% of the respondents had achieved a managerial position. The other career alternative was as an expert in a particular field: engineering, natural sciences, agriculture and forestry (see Table 4).

A doctoral education did not provide better options for working in management positions than lower level education did. The proportion of managers among the doctorate holders and the master's degree holders was 11% (see Korhonen and Sainio [2006](#)). Similarly, a managerial career is not common for doctorate holders in Norway, Spain or Portugal (Auriol, Misu, and Freeman [2013](#)). Evidence across nation states (with the exception of Germany) supports these findings, as it is common that no benefit accrues from the doctorate (Enders [2004](#)). These findings follow the comparative international statistics that show that doctorate holders are mostly in professional

positions in the labour market and the proportion of managerial positions or employment that is inappropriate for a doctorate holder is relatively low in Europe (Eurostat [2012c](#)).

However, managerial duties may not always be reflected in the occupational title. On the basis of the survey analysis, regardless of the title, a third of the respondents had management responsibilities and such managerial responsibilities were more common outside the academy (29–37%) than in universities (20%).

According to the survey, only a small proportion of the doctorate holders reported that their doctorate was required for their current employment (see Table 6). In addition, work experience was emphasised (see Table 5). The doctoral degree was demanded more often for employment in non-university higher education institutions and in the sectors where the respondents worked as researchers and in the governmental and the non-profit private sectors (see Table 6). However, the highest academic degree did not even provide graduates with a monopoly position in research in relation to those who held a lower level degree. Researchers made up 11% of master's degree holders in 2005. This proportion has been estimated based from the survey data of Korhonen and Sainio ([2006](#)).

**Table 5. The priority of work experience as the requirement for current position by sector (percentages). ‘I was employed on the basis of my work experience and a doctoral degree was rather insignificant’.**

	Municipality	Non-profit private	Business	Government	University	Non-university HE
Yes	43	45	40	38	17	24
No	53	53	55	59	80	76
Does not know	4	2	5	3	3	0
Total	100	100	100	100	100	100
(N)	(190)	(45)	(124)	(136)	(400)	(56)

**Table 6. Doctoral degree as the requirement for current position by employer sector (percentages).**

Doctoral degree required	Municipality	Non-profit private	Business	Government	University	Non-university HE
Yes	22	37	17	45	76	63

No	73	53	75	48	20	37
Does not know	5	9	7	7	4	0
Total	100	100	100	100	100	100
(N)	(192)	(43)	(126)	(137)	(403)	(57)

## Doctoral careers: no niche, but a special set of tasks

In this section, the occupational profile, doctoral niche and managerial positions of doctorate holders are investigated on the basis of the interviews held with the employers.

On the basis of the employers' interviews, the doctoral degree holders often had the same job descriptions as the staff members with a master's degree. Doctorate holders compete with master's degree holders in the professional labour market, as the lower level degree holders' occupational destinations were relatively similar to those of the doctorate holders. The particular company or other organisation defines the requirements for research positions, although the status of the doctorate improves the opportunities for R&D positions for doctoral graduates.

In addition, in only a few organisations did doctoral degree holders have more senior positions in the organisational hierarchy than the other personnel did. In these organisations, doctoral degree holders were managers of R&D departments or education programmes.

There was no specific niche for doctorate holders, except some positions in R&D, but a majority of employer organisations utilised the doctoral competence of their employees. They assigned special tasks to them that presumed high-quality competence or a doctoral degree as a sign of academic credibility. These special tasks included the following: experts on committees, specialised journalists, leaders of educational programmes and marketing staff in the pharmaceutical industry. One of the interviewees, a civil servant in a leading position, reported that in the Ministry, all the job descriptions of their professional employees were similar, despite the degree (a master's degree or a doctorate), but the doctorate holders had some responsibilities which presumed higher competence. In the following quotation, he emphasises the importance of having a doctoral degree for implementing specialised tasks.

Sure, when we want the most competent experts for committees, parliament and groups preparing new legislation, we choose doctorate holders. Their competence is more appropriate for communication, conceptual thinking and writing. (Senior professional, governmental sector)

On the basis of the survey data from the doctorate holders and the interview data from the employers, the occupational profile of doctorate holders comprised research, management and expert work, and the profile varied between sectors. The doctorate holders did not have a niche in the labour market, and the proportion of managers did not exceed the corresponding number of those having a master's degree. Although the doctorate holders did not have a niche in the labour market, they had special tasks requiring special competence attached to their job descriptions. In



addition, in research, they were often given preference with respect to recruitment and promotion to managerial positions.

### **Is the doctorate recognised?**

On the basis of the survey analysis, the doctorate holders outside the academy often received a salary increase after completing their PhD studies, although in the academy (82%) and in the non-university institutions (91%), it was more common for this to occur. Outside the academy, the proportions varied from 62 to 74%. In addition, one third of those working outside the academy reported career improvement. Again, those working in universities and in the non-university higher education sector scored slightly better; for example, 58 and 57% of them had a career promotion.

Most of the employers interviewed reported that the salaries of the doctorate holders did not exceed the average level of all professional employees. In addition to the financial benefits, the salary level describes the doctorate holders' position, as the size of the salary tends to be related to the value the employer places on the employee. In private sector companies, doctoral degree holders were not better paid, but the employers increased their salary or promoted them if they considered that the doctoral education had benefits for the company. In the following quotation, a research manager describes the value of the doctoral degree in relation to industry-specific competence. The salary indicates the value. He noted, 'The level of salary depends on how much experience they have and their competence with our business-specific models. It is more important than a degree'. (Managing director, private sector organisation)

On the basis of the survey data from the doctorate holders and the interview data from the employers, the benefits of the doctorate were not always equated to an increase in salary and career improvement outside the academy. The views of the doctorate holders and their employers differed slightly regarding the value of the doctoral degree for career promotion. This is due to the multi-perspective methodological frame, which has led to some inconsistency concerning the contents of the concepts. The doctorate holders and the employers may have had slightly different interpretations of the concepts 'career' and 'value of doctorate'. Unfortunately, the methodological frame did not provide an opportunity for investigating the reason for these differences.

The difference in the views suggests the need for further empirical research, as it indicates a need to study work-related conceptions and their empirical equivalents.

### ***The motives for employing PhD holders***

The motives for employing PhD holders outside the academy can be studied by investigating the competence requirements and the other reasons for employing doctorate holders. Most of the analysis regarding the motives for employing doctorate holders is based on data from the interviews with the employers and the findings of the survey regarding the competence requirements are mentioned briefly.

### **Industry-specific competence**

Employers in both the public and private sectors most often recruited doctoral degree holders to undertake R&D tasks and research competence was mentioned as being very important for improving R&D in these organisations. However, the purpose of the R&D was to produce knowledge for practical purposes and not for the community of scholars. A research manager in a

non-profit private organisation describes their organisation-specific and practically oriented research work and related methods in the following quotation.

We are required to work fast and carry out applied research, as the purpose of our main organisation is to influence political decision-making. In our research department, it is clear that our task is to produce knowledge for the purposes of our main organisation. Scholars have to take on the role of a professional expert. We must have the competence of journalists: to be able to write fast and to be specific. (Manager of professional functions, non-profit private organisation)

On the basis of the study of private and non-profit private organisations, three recruitment patterns were found. First, the organisations had changed their strategies (for example, in the pharmacy industry, changing the line of products) and they needed doctorate holders to reshape the R&D or to start new R&D projects or programmes with universities. The second pattern was recruitment of doctorate holders for a variety of tasks (research, marketing, knowledge support for the management, etc.) in addition to research in the established R&D-based organisations. Third, the work organisations had permanent affiliations with universities (a spin off-company, teaching affiliation of the manager, etc.) and some of the staff were doctorate holders or were carrying out doctoral studies. However, there was no particular need to recruit staff with a doctoral degree.

The first and second patterns were found in five organisations and the third pattern was followed in seven organisations. There were no differences between the patterns with respect to business line or the size of the organisation.

The employers emphasised industry-specific competence and it was considered that the doctoral degree would provide added value if the degree holders had competence which was crucial from the point of view of the employer organisation recruiting them.

The analysis of the doctorate holders' survey supported the views of the employers. Based on the survey analysis, the doctoral respondents, who were employed by universities, highlighted the importance of research competence. The respondents outside the academy, particularly in the municipal or private sector, most often reported the importance of industry-specific competence (see Table 7).

**Table 7. The most important competence by employment sector (percentages).**

Competence	Municipality	Non-profit private	Business	Government	University	Polytechnic
Industry-specific or prof. specific competence	50	36	48	43	11	27
Research competence	3	33	12	28	43	33
Teaching competence	7	2	9	2	10	10
Analysis & knowledge acquisition skills	10	14	11	7	6	10
Management & coordination skills	4	2	7	4	3	7
Interaction skills	5	2	2	1	3	0
No respond	21	11	11	15	25	12
Total	100	100	100	100	100	100
(N)	(191)	(42)	(126)	(138)	(406)	(59)

There were no ready-made response alternatives for the question. The written responses were categorised and analysed as quantitative data.

The employers interviewed claimed that industry-specific competence can be achieved particularly through work experience and the doctorate holders were no exception to this. First, industry-specific competence consisted of industry-specific or organisation-specific knowledge, referring to the subject field of the industry or the organisation. Second, it referred to the skills of particular working methods and patterns. The competence on particular working methods and patterns consisted of management of R&D processes (for example, schedules, budgets, patents and quality assurance systems), applying the goals of the organisation in their work (for example, sales) and adjusting oneself to the appropriate position (for example, expert instead of researcher).

The shortage of industry-specific competence was also a reason why some employers hesitated to recruit young doctorate holders without any industry-specific work experience. Some employers thought it sensible to have experienced doctorate holders on the staff and they expected that these senior experts would be capable of applying their doctoral competence in an appropriate way. This claim has been confirmed by Craswell's study (2007). This was typical for the research managers who were members of the academic community. Lecturing was a typical duty. In the following quotation, a manager describes both the academic competence and the industry-specific competence of their senior experts. The senior experts carried out their doctoral studies as part-time students.

They are competent to apply the models of our business. In addition, they write scholarly articles and their doctoral thesis when carrying out customer projects. That way we have staff members that know how to work in a private sector company. (Middle management, private sector organisation)

### **Status of the degree and membership in the academic community**

When studying the competence of doctorate holders, the cultural and social capital of the degree should also be examined. The degree provides its holders with membership in the academic community and the status of the PhD being the highest academic degree. According to a study on R&D companies, new and inexperienced firms in the R&D market strive for partnerships with universities and employ doctorate holders for this reason (Luo, Koput, and Powell 2009). The doctorate holders' membership of the academic community is necessary for creating contacts and partnerships with universities. Scholars are an invisible community that can cross the boundaries of organisations, and employers outside the academy can benefit from the extensive research competence based on these communities (Luo, Koput, and Powell 2009). A doctorate can take three forms in R&D: intellectual competence, network mediation and academic capital. Academic capital improves the R&D credibility of the firm in the eyes of funding agencies and it indicates the quality of the organisation (Luo, Koput, and Powell).

For the employers interviewed, the reason for employing doctorate holders was first, to enhance the professional credibility of the organisation and second, to strengthen R&D and promote collaboration with universities. Most of the employer organisations sought collaboration with universities and research institutions and their method was to recruit doctorate holders to promote partnerships with the academy. The doctorate holders advanced collaboration with universities as they utilised their personal contacts within the academy. Some of the managers interviewed noted that they had specifically recruited academic staff for that purpose. 'The task of a recently employed doctorate holder is to coordinate training projects which presumes contacts with universities', reported a manager in a private, non-profit private organisation.

The recruitment of doctorate holders in order to promote partnerships with universities was particularly emphasised by those employer organisations whose R&D was poorly developed or did not meet academic criteria. An expert consultant interviewed for this project describes the consultant network at the workplace, which consisted of practising professionals and colleagues with a doctoral degree and an academic position. He reported that the competence of the network was of high quality due to the academic contribution.

In our (consultant) network, we have some professionals who have specialised in research and working with patients. This has made it possible to strengthen our competence constantly. The boundaries between the university and our clinic carrying out patient work are much lower now. (Freelance entrepreneur)

The fourth and fifth research questions dealt with the competence required and motives for employing doctorate holders outside the academy. Based on the responses to the survey and the interview data from employers, industry-specific competence was considered to be the most important in all sectors. As in the academy, research competence was rated as being the most crucial. In addition to cognitive competence, the motives for recruiting doctorate holders included qualities based on their academic status and membership of the academic community. First, the status of the doctorate was assumed to enhance the professional credibility of the organisation, and, second, the academic membership of the doctoral employee was expected to promote collaboration with universities.

## **Discussion**

The conclusions to this study are based on three focal issues: the relationship of labour markets and education, the personnel policy of organisations outside the academy and the academic reputation strategy of universities and companies and other non-academic organisations. These perspectives emerged from the analysis.

There was no labour market niche for doctorate holders working outside universities in the Finnish labour market. This is because the hierarchy of jobs in many sectors does not map or correspond to career paths, logic and the structure of employment in universities. The relationship between education and labour markets is complex and outside the academy, academic values do not necessarily correspond to the values and needs of the organisations.

According to some studies, Finland, the other Nordic countries, Germany and some other countries in Central Europe, follow the ‘continental higher education model’, which represents a pattern in which employment is affected by higher education qualifications, whereas in the UK, the relationship is looser (see Arthur and Brenda [2010](#)).

### **Personnel policy and doctorate holders**

Industry-specific competence was regarded as most important outside the academy, whereas in the academy, research competence was regarded as the most crucial factor. Research competence was valued outside the academy, but in terms of the practical needs of the industry. The personnel policy of the organisations outside the academy emphasised such skills and attitudes that were useful for the organisation. According to studies of established patterns regarding the employment of university graduates, personnel policy can be strict (Brown, Lauder, and Ashton [2011](#); Gorman and Sandefur [2011](#)). However, in this study, the personnel policy of the work sites outside the academy promoted utilisation of doctoral competence by offering doctorate holders specialised tasks. This

may be due to the country-specific labour strategies, as the most developed countries in the European Union in this regard have been the Nordic countries (Hartikainen et al. [2010](#)). To summarise, personnel policy outside Finnish work sites tends to follow employment policies which focus on the company's targets and needs, but tend to be carried out in a way that takes into account individual competence and the needs of doctoral employees.

## **Increasing competition for academic reputation – increasing stratification of the doctoral labour force?**

Employers regarded the doctorate as being useful for enhancing the professional profile of the organisation and particularly for promoting R&D collaboration with universities. In other words, academic reputation was important for public relations and networking functions. The employers interviewed did not stratify the universities according to their reputation in this regard. However, since the time of the data collection, competition based on academic reputation has increased due to national and international tendencies, mostly the internationalisation of higher education and the new University Act (which became effective from the start of 2010) in Finland. According to the new law, universities should now seek funding from companies and other non-government organisations to make up for the funding no longer available from the Ministry. Therefore, universities now have a financial incentive to work to enhance their reputations.

Equal access to high-quality universities, the homogeneous quality of universities and the substantial opportunities for development in work/life organisations may not provide elite positions for all graduates, but there is an opportunity for a sustainable career. However, this may turn to increasing differences between universities and uneven quality of doctoral employment with the tendencies of the growing competition between universities and between doctorate holders in labour markets.

## **Notes on contributor**

**Arja Haapakorpi**, senior researcher, is specialised in education policy, particularly higher education policy, and working life studies. She has published over 50 articles, chapters in books and monographies in Finnish and English.

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